

Data retention system for persistent data

Publication number: DE19819205
Publication date: 1999-11-04
Inventor: SCHOENWOLF GERD (DE); ZIEMSKI STEFAN (DE);
BREDEL PETRA (DE)
Applicant: SIEMENS AG (DE)
Classification:
- international: G08F9/44; G11C29/00; G08F9/44; G11C29/00; (IPC1-
7): G08F9/44; G08F1/30; G08F12/16
- european: G08F9/44M4; G08F17/30S3; G11C29/00R4
Application number: DE19981019205 19980429
Priority number(s): DE19981019205 19980429

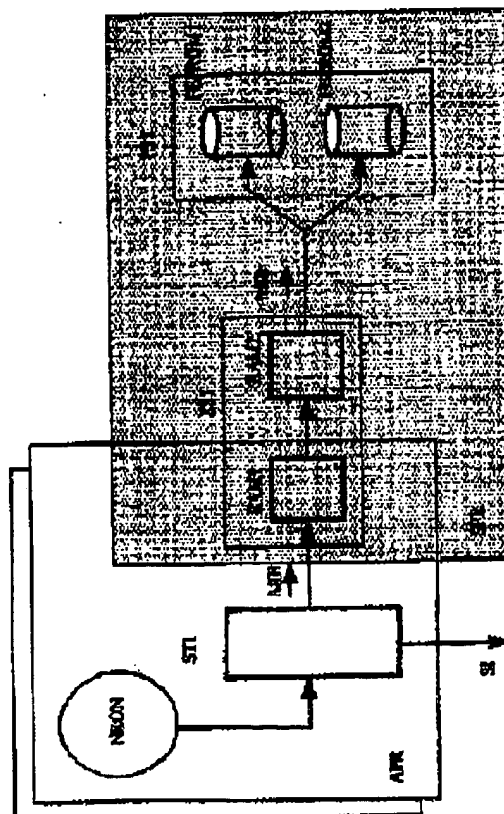
Also published as:

US7127478 (B1)
CA2253949 (A1)
AU722780B (B2)

Report a data error here

Abstract of DE19819205

The data retention system has a temporary memory (ZST, RAM1, RAM2) in which the persistent data (MIB) can be entered for transfer to a persistent memory (PST, FEPR0M1, FEPR0M2). The persistent memory has two storage modules or storage locations, each of which receives all the persistent data received from the temporary memory.





HP050202PDE ✓

December 4, 2006

**TRANSLATION INTO ENGLISH OF:
OFFICE ACTION**

Of : November 9, 2006 ✓
Applicant : Hewlett-Packard Development Co., L.P.
Application No. : 10 2005 006 176.1-53 ✓

The numbers of the following references are cited in this Office Action for the first time and will be used consecutively throughout the examination proceedings:

- 4.) DE 196 19 205 A1
- 5.) US 6 493 837 B1
- 6.) US 2003 / 0 131 039 A1

I.

In the oral proceedings held on November 9, 2006, the applicant submitted amended claims 1 to 19, received on November 9, 2006; these claims are to be used as a basis for the continued examination proceedings.

In the oral proceedings, the applicant explained that in the newly filed main claim some of the deficiencies specified in the oral proceedings held on November 7, 2006, have been eliminated. From the applicant's point of view, the subject matter of the newly filed main claim is new and inventive in comparison with references 1 to 3 which have been cited in the examination proceedings.

The applicant additionally explained that the transaction system according to the subject matter of the pending claim 1 according to the main request comprises a permanent disk memory for storing audit trail data and non-disk persistent memory units, the audit trail data being first stored in the non-disk persistent memory units before they are stored in the permanent disk memory. According to the subject matter of claim 1 according to the auxiliary request, a concatenation of audit trail data in the non-disk persistent memory units is additionally provided, before said audit trail data are written to the permanent persistent memory units.

On the basis of the statements made by the applicant, references 4 to 6 have been ascertained in a further search.

II. Claim 1 according to the main request

As has been described in the Office Actions of April 28, 2006, and September 4, 2006, as well as in the oral proceedings held on November 9, 2006, a transaction processing system according to claim 1 of the main request of the present patent application had been obvious to the person skilled in the art - viz. an engineer who has taken a degree in electrical engineering or a graduate computer scientist with several years of experience in the field of database system development - from the prior art already before the priority date, since reference 1 (Abstract, Fig. 1) and reference 4 (page 7, chapter 7 "Prozessübergreifende Transaktionssteuerung" ("Inter-process transaction control")) describes a transaction processing system. A person skilled in the art would combine these two references since they both deal with transaction systems. The following features can be gathered from a synopsis of references 1 and 4:

- a database writer configured to process data in accordance with one or more transactions within the data processing system (reference 1, claim 28 "store data for [...] database applications", reference 4, page 7, lines 28-29 "the database is updated"),
- a transaction monitor for monitoring transactions within the transaction processing system (reference 1, claim 28 "database connection agents associated with said applications", reference 4, page 7, lines 26-27 "deals with transactions"),
- a log writer for maintaining audit trail data associated with transactions within the transaction processing system (reference 1, claim 28 "transaction log buffer", reference 4, page 3, lines 62 "DBControl [...] It realizes the persistency" in combination with page 7, Fig. 6 and description lines 25-30 (DBControl (process1 "transaction"), (DBControl (process2 "and their commit"))),
- one or more (semi) non-disk persistent memory units (reference 4, page 8, Fig. 7, lines 24-25 "pRAM as an intermediate station for the database") associated with the log writer and configured to receive, from the log writer, audit trail data and to store said data (page 8, lines 18-26 "DBControl" in combination with reference 4, page 3, line 62 "DBControl [...] it realizes the persistency" and page 3, lines 28-30 "Subsequently, a program-controlled automatic reconstruction of the configuration data is carried out, on request, in the application by the data directory"). Adding here non-disk persistent memory units, e.g. NVRAMs, does not exceed the measures which will be taken into account by those skilled in the art. In

this respect, the applicant's attention is additionally drawn quite generally to reference 6 ([0044]), which summarizes the prior art concerning the use of NVRAMs (non-disk persistent memory units) in transactions systems,

- one or more audit log disk persistent memories (reference 1, claim 28 "store data for [...] database applications", reference 4, page 4, "distributed database assistance or the SQL interface") to receive and store audit trail data that is first received and stored by one or more non-disk persistent memory units (reference 4, page 8, line 21 "semipersistent RAM [...]. Its content remains unchanged in the case of a system reset and is used for initialization in this case"). To a person skilled in the art it will be self-evident that, prior to the use of contents, these contents have also been stored.

It follows that the essential features of the pending claim 1 according to the main request are described by a synopsis of references 1 and 4.

The pending claim 1 according to the main request is therefore not allowable because its subject matter does not involve an inventive step.

II. Claim 1 according to the auxiliary request

As has been described in the Office Actions of April 28, 2006, and September 4, 2006, as well as in the oral proceedings held on November 9, 2006, a transaction processing system according to claim 1 of the auxiliary request of the present patent application had been obvious to the person skilled in the art - viz. an engineer who has taken a degree in electrical engineering or a graduate computer scientist with several years of experience in the field of database system development - from the prior art already before the priority date, since reference 4 (page 7, chapter 7 "Prozessübergreifende Transaktionssteuerung") describes a transaction processing system. Also reference 5 (Abstract, "event tracing program") describes a transaction processing system. A person skilled in the art would combine these two references, since they both deal with transaction systems. The following features can be gathered from a synopsis of references 4 and 5:

- a database writer configured to process data in accordance with one or more transactions within the data processing system (reference 4, page 7, lines 28-29 "the database is updated"),
- a transaction monitor for monitoring transactions within the transaction processing system (reference 4, page 7, lines 26-27 "deals with transactions"),

4

- a log writer for maintaining audit trail data associated with transactions within the transaction processing system (reference 5, column 5, line 66 "log buffer to record event data", reference 4, page 3, lines 62 "DBControl [...] It realizes the persistency" in combination with page 7, Fig. 6 and description lines 25-30 (DBControl (process1 "transaction"), (DBControl (process2 "and their commit")),
- one or more non-disk persistent memory units (reference 4, page 8, Fig. 7, lines 24-25 "pRAM as an intermediate station for the database") associated with the log writer and configured to receive, from the log writer, audit trail data and to store these data (reference 4, page 8, lines 18-28 "DBControl" in combination with reference 4, page 3, line 62 "DBControl [...] It realizes the persistency" and page 3, lines 28-30 "Subsequently, a program-controlled automatic reconstruction of the configuration data is carried out, on request, in the application by the data directory"). The buffering can be gathered from reference 5 (column 5, line 7 "set of log buffers"). Adding a semipermanent buffer, which represents at least for the reset a non-disk persistent memory unit, as known from reference 4, does not exceed the scope of the measures which will be taken into consideration by those skilled in the art.
- The feature that combined data are written to an audit log disk can be gathered from reference 5 (column 5, line 24 "transfer the log buffer to the flush list"). Reference 4 discloses semipermanent RAMs in transaction systems. Adding to a log writer also a non-disk persistent memory unit existing also after the reset does not exceed the scope of the measures which will be taken into account by those skilled in the art. In this respect, the applicant's attention is additionally drawn to reference 6 ([0044]) which summarizes the prior art concerning non-disk persistent memory units in transaction systems.

It follows that the essential features of the pending claim 1 according to the auxiliary request are described by a synopsis of references 4 and 5.

The pending claim 1 according to the auxiliary request is therefore not allowable because its subject matter does not involve an inventive step.

IV.

Summarizing, it can be stated that a basis for an allowable set of claims cannot be seen in the present patent application.

V.

The applicant is requested

- a) to submit a new, clear set of claims which is limited with regard to the closest prior art and the main claim of which contains a clear and complete solution with technical means or measures,
- b) to state a precise, unequivocally and positively formulated task,
- c) to prove that new features which may have been incorporated in the claims are disclosed in the original documents as features which are essential to the present invention, and
- d) to explain the advantages of the newly claimed subject matter as well as to elucidate, in detail, the inventive step in comparison with the proved prior art and the specialized knowledge of a person having ordinary skill in the art, and
- e) to assess the prior art (according to the references) in the description (Patent Act § 34, Subsection 7).

If the application is, however, maintained on the basis of unamended claims or on the basis of claims having essentially the same factual content, rejection of the application will have to be reckoned with, when the period granted has expired.

Patent Examiner for class G 06 F
Dipl.-Phys. Bässler

Encl.

copies of references 4 to 6